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Implications of Soviet Use of Chemical and Toxin Weapons for US Security Interests

Special National Intelligence Estimate

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IMPLICATIONS OF SOVIET USE OF CHEMICAL AND TOXIN WEAPONS FOR US SECURITY INTERESTS

Information available as of 15 September 1983 was used in the preparation of this Estimate.

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THIS ESTIMATE IS ISSUED BY THE DIRECTOR OF CENTRAL INTELLIGENCE.

THE NATIONAL FOREIGN INTELLIGENCE BOARD CONCURS, EXCEPT AS NOTED IN THE TEXT.

The following intelligence organizations participated in the preparation of the Estimate:

The Central Intelligence Agency, the Defense Intelligence Agency, the National Security Agency, and the intelligence organizations of the Departments of State and the Treasury.

Also Participating:

The Assistant Chief of Staff for Intelligence, Department of the Army

The Director of Naval Intelligence, Department of the Navy

The Assistant Chief of Staff, Intelligence, Department of the Air Force

The Director of Intelligence, Headquarters, Marine Corps

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SCOPE NOTE

Soviet development and transfer of lethal chemical and toxin agents and their use against combatants in Laos, Kampuchea, and Afghanistan have breached a widely accepted barrier against employment of these weapons which, with few exceptions, has held fast since World War I. The determination that the Soviet actions constitute a violation of the 1975 Biological and Toxin Weapons Convention was made at the highest levels of the US Government. The violation has profound implications for US security interests.

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This Estimate examines these implications in four areas:

— International reactions affecting arms control.

— The spread of chemical weapons.

— Western defenses against such weapons.

— Intelligence collection and analysis.

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KEY JUDGMENTS

The Soviet Actions

The Soviet chemical and toxin warfare actions were almost certainly the result of a conscious leadership decision. That decision was probably influenced by the following considerations:

- That the agents used would be militarily effective for the purposes intended.
- That no threat of retaliation existed.
- That the situations offered opportunities for operational testing.
- That the probability of detection was low and any evidence acquired would be ambiguous.
- That the political risks of a response were negligible, and any adverse international reaction could be contained.

If these were the considerations that guided the Soviet decision, we believe they have been largely borne out by events. 25X1

International Reactions Affecting Arms Control

The intelligence evidence [1] that formed the basis of the Presidential determination of Soviet violation of the Biological and Toxin Weapons Convention has been steadily strengthened by confirmatory reporting and analysis. Nevertheless, West European and other governments and publics have widely resisted fully accepting the published evidence. Faced with the classic compliance issue of what to do about a detected violation, those governments have exhibited great reluctance to react in a concerted and politically significant way. This reluctance poses a continuing obstacle to a forthright Western response to the violation. 25X1

There are a number of reasons for the lack of a concerted international response:

- Initial European suspicions that US charges were motivated by anti-Soviet propaganda objectives.

[1] See annex A for a summary of the intelligence evidence.

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— Scientific controversy that erupted over portions of the US case, and was exploited by the media in a manner adding to public confusion and skepticism.

— The fear, harbored by some, that charging a Soviet violation would jeopardize future accords.

— Rationalization that the violation is not of sufficient military significance to warrant exacerbating the already strained US-Soviet relationship.

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The skepticism about the credibility of the evidence survives in part because of the inherent limitations of sensitive intelligence, including the need to protect sources and methods, which fundamentally inhibit its persuasive public use. 25X1

In our judgment, the impact on the Soviet leaders of the lack of a concerted and sustained response to their violations may be more significant than the violation itself, as it could lead the Soviets to conclude that violating arms agreements carries no lasting penalty. It may reinforce the Soviet propensity to disregard arms limitation agreements that they believe cannot be effectively monitored or enforced. One lesson that emerges from this analysis is that if an agreement banning chemical warfare (CW) is to be effective there must be not only adoption of stringent verification arrangements but also a Soviet conviction that the West has the resolve to act decisively in the face of discovery of a violation. 25X1

The Proliferation Issue

The evidence of Third World acquisitions of chemical warfare capabilities (summarized in this Estimate) shows a proliferation momentum greater than heretofore appreciated. 25X1

Soviet military assistance has been a common source and major stimulus to this momentum. Since CW capabilities are integral to the Soviet force structure, the fact that they were transferred through the military assistance program is not surprising. Soviet assistance is likely to continue, hence the momentum will probably be sustained. 25X1

Much of the action has been centered in the Middle East, but other areas—parts of Southeast Asia and the Horn of Africa—are increasingly at risk. The attractions of chemical weapons for Third World forces,

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combined with a multiplicity of open market sources of chemical materiel, provide further nourishment for this growth. As more nations join the chemical club, a heightened sense of vulnerability is bound to manifest itself. We therefore expect a continued upsurge in chemical warfare activities.

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The appearance of chemical agents in local conflicts and the introduction of chemical weapons to regions of strategic importance confront US and allied forces with an increased likelihood that they will become deliberate or unintended targets of attack with such weapons, even quite independently of any direct Soviet role. The risk is as yet small, but is almost certain to grow.

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The Western Defense Issue

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The Intelligence Issue

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DISCUSSION

Soviet Actions and Policies

Soviet Chemical Weapons (CW) and Toxin Use

1. The fact that the Soviet Union has transferred lethal chemical and toxin weapons to Southeast Asia and has used them in Afghanistan [2] has caused the US national security community to focus on an aspect of Soviet military posture and policy that has heretofore received little attention—namely that chemical weapons are treated as an integral and effective part of the overall weapons array available for use by Soviet forces in conjunction with either conventional or nuclear weapons.

2. The spectrum of modern chemical agents and delivery systems available to Soviet and other Warsaw Pact forces provides a capability to attack protected and unprotected personnel in almost any tactical or weather condition and to produce residual contamination on equipment, ships, and terrain. In addition, the Pact has vigorous and extensive programs to prepare its forces for operations in a chemical or biological environment.

3. The use of a variety of lethal chemical agents, including some that remain unidentified, has been largely overshadowed by the discovery of a new class of agents—trichothecene mycotoxins—a component of "yellow rain."

4. From the available evidence it seems clear that toxin weapons are considered by the Soviets to be a specific class of chemical weapon whose use would be determined by the tactical requirements.

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6. There is no doubt that Soviet forces have a substantial capability to conduct chemical warfare operations, both offensive and defensive. Their CW doctrine is well integrated with overall military doctrine, and they have more chemical units, training, equipment, weapons, and delivery systems than any other nation. They are subject, however, along with many other nations, to the international obligations they have accepted constraining this form of warfare.

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The Obligations

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7. On 5 April 1928, the Soviet Union ratified the Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, also known as the Geneva Protocol. As one of the first signatories to the Geneva Protocol, the Soviet Union (as did many other nations) retained two reservations: that the Protocol is binding only as regards relations with other Parties and that it ceases to be binding in regard to any enemy states whose armed forces or allies do not observe provisions. Vietnam acceded to the Protocol on 23 September 1980; Afghanistan, Laos, and Kampuchea are not Parties.

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8. The Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction (BWC) was ratified by the Soviet Union on 26 March 1975. This Convention obligates Parties "never in any circumstances to develop, produce, stockpile, or otherwise acquire or retain (1) microbial or other

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biological agents, or toxins whatever their origin or method of production, of types and in quantities that have no justification for prophylactic, protective, or other peaceful purposes; or (2) weapons, equipment, or means of delivery designed to use such agents or toxins for hostile purposes or in armed conflict" (Article I). The BWC further obligates parties: "not to transfer to any recipient whatsoever, directly or indirectly, and not in any way to assist, encourage, or induce any State, group of states, or international organizations to manufacture or otherwise acquire" any of the agents, toxins, weapons, equipment, or means of delivery specified above (Article III). Afghanistan, Laos, Kampuchea, and Vietnam are all Parties to the BWC as well. The BWC does not include a specific prohibition on use, as Parties agree that that is covered under the Geneva Protocol.

9. The United States, the Soviet Union, and the great majority of the international community have taken the position that the prohibition on use stated in the Geneva Protocol has become part of customary international law of armed conflict as a result of general adherence to the Protocol, the practice of states in refraining from chemical and biological weapons (CBW) use in subsequent major wars, and the declarations of international organizations. As such, the prohibition would apply to all states and to all conflicts. The Soviet Union has never, to our knowledge, argued to the contrary.

The Violation

10. According to the provisions of the BWC, development, transfer, and weaponization of toxins constitute a violation of the Convention. While Warsaw Pact and US military literature suggests some artificial distinctions among toxins,[3] it is clear from the BWC negotiating record that *all* toxins, regardless of origin, method of production, or molecular weight, were intended to be covered under the prohibition.

11. The production or possession of toxins for use as weapons in armed conflict is not permissible under the BWC, regardless of the quantities of toxins involved. Therefore, the Soviet involvement in "yellow rain" would be considered a violation of the BWC if any of the following elements is established: (1) that Soviet forces possessed toxin weapons in Afghanistan; and (2) that the Soviets supplied toxin weapons, or quantities of toxins for weapon purposes, to any of the forces in Afghanistan or Southeast Asia; or (3) that the Soviets assisted any of the forces in Afghanistan or Southeast Asia in producing, acquiring, or using toxin weapons or quantities of toxins for hostile purposes. Similarly, Afghanistan, Vietnam, Kampuchea, or Laos would be in violation if possession or transfer of toxin weapons by their forces is established. Intelligence clearly supports a positive finding on all three of these elements, most conclusively on the latter two. It was on the strength of these findings that the US Government, at the highest levels, declared the Soviet Union in violation of the BWC.

Rationale

12. Why would the Soviet leadership risk incurring international opprobrium for an arms agreement violation?

13. First, while we believe that an explicit policy calculus was involved, it is not entirely certain that the *initial* use and transfer of chemical weapons was in fact the result of a high-level Soviet Government decision. There is a remote possibility that the integration of such weapons in the Soviet force structure and their standard inclusion in Soviet training and doctrine caused such weapons to find their way into local conflict use without highest level deliberation. Soviet persistence, implies at least awareness and condonement at highest government levels

14. The decision that resulted was probably impelled by the following considerations:

— *Military effectiveness.* The weapons are, in fact, well suited to the circumstances in which they have been used, that is, in operations against

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unprotected, stubborn, highly elusive, irregular forces in mountainous and jungle areas. In some situations, for example, that of the H'Mong tribes in Laos, the terrorizing impact of the toxin weapons has succeeded in driving them out of their highland redoubts.

— *No threat of retaliation.* Soviet and client forces could employ these weapons without fear of reprisals in kind.

— *Operational testing.* The local situations offer favorable opportunities to evaluate the effectiveness of weapons under field conditions. A wide range of chemical weapons were in fact operationally employed and after-action field examinations of victims were conducted.

— *Negligible risk of detection.* Effective Soviet and client state control over access to the regions and the rapid degradation of the agents after dissemination must have argued strongly against the likelihood that outsiders would acquire persuasive evidence of the violation.

— *Unlikelihood of strong international reaction.* The standards of evidence demanded by most governments to enable them to surmount their political and psychological resistance to acknowledging the fact of violation are such as to be in practice unobtainable. Hence, even in the event of such a reaction, the leadership could count on its highly developed propaganda instruments to turn back or defuse any accusation.

15. We have considered and rejected two other hypotheses that could explain Soviet toxin use. One is that toxins were regarded, or perhaps represented by the Soviet military, as a class of herbicides which subsequently manifested unexpected lethal antipersonnel effects. We do not view this hypothesis as persuasive, given the secrecy, tight control, and medical caution often applied to these weapons in the field and the unambiguous antipersonnel manner in which they have often been employed. The other derives from interpretations of international agreements. First, a strict technical interpretation of the Geneva Protocol proscription against use would not imply a violation in Afghanistan, Laos, or Kampuchea, as those countries are not parties. Second, the customary international law extension or interpretation, which the Soviets have at times endorsed, does not appear to act as an effective constraint on Soviet behavior. As with other arms control agreements, the Soviets have demonstrated that they feel bound only to explicitly stated obligations.

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16. The Soviet response to accusations of toxin use has never relied on the above interpretations. Their tactic has been one of absolute denial, counter allegations, and evasive contentions. Among their most vocal retorts to US charges of use is the accusation of US conduct of chemical warfare in Vietnam.[4]

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International Reactions Affecting Arms Control

The European Response

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18. Western Europe initially responded to the unveiling of Soviet involvement in chemical and toxin warfare with profound skepticism. Political reactions were hesitant and defensive. They were played out in three forums: the Committee on Disarmament (CD) in Geneva, the UN General Assembly (UNGA), and the NATO Secretariat.

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19. In the *CD*, where the CW negotiating effort is centered, the most significant Western response to the revelation of CW use was to press for the conclusion of a comprehensive and verifiable CW ban. While most Western governments exhibit great reluctance to level

[4] The United States has adopted the interpretation that the Protocol does not apply to nontoxic riot-control agents and chemical herbicides.

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charges of CW use, they now recognize the necessity to tackle the difficult verification issue in any CW ban.

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20. At the *UNGA*, unlike the CD, diplomatic activities have sought to draw attention to the CW use issue. The UNGA adopted a resolution in December 1980 to undertake an investigation of the allegations of use of chemical weapons and subsequently extended its mandate for an additional year. As long as the investigation continued, most governments felt relieved of any obligation to speak out on the issue. Since the release of the final report in December 1982, with the cautious finding that it "could not ignore that there was evidence that such weapons might have been used in some cases," we have seen more willingness among the Western nations, notably the French and British, to make public statements condemning chemical use. Other UNGA efforts are under way to develop procedures to investigate future allegations of use and to attempt to improve verification provisions in existing treaties.

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21. In the *NATO* Secretariat, particularly in the Military Committee, the principal response has been one of heightened awareness of Soviet capabilities to use toxins in the European theater and concern about the resulting implications for NATO forces. But constraints at the political level of NATO governments have sharply inhibited serious action on these concerns.

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22. How can we explain the subdued Western reaction to the CW revelations? In addition to the basic skepticism already noted, the following factors were at work:

- Initial European attitudes were colored by their suspicion that the United States was pursuing the CW use issue for its anti-Soviet propaganda value and to support its CW modernization program. That suspicion has only partly dissipated, and has reinforced a European determination to distance themselves from what they view as a confrontational US style in East-West relations.
- The initial European reluctance to support the US charges was also due to the paucity of scientific evidence the United States was able to adduce, their own inability to collect and analyze contaminated samples, and their unfamiliarity with the new analytic techniques that were required to detect and quantify the toxins.
- Failure to take a public stance on the CW use issue is part of a larger European preference for pursuing an independent, more accommodating policy toward the USSR. This preference is rooted in a number of special European economic and political interests vis-a-vis the Eastern Bloc. This orientation and the value they attach to demonstrating progress in the arms control arena, leads them to avoid making public charges of Soviet violations.

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Implications

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26. Another Western rationalization for acquiescing to noncompliance is the assertion, sometimes publicly made, that because there is strategic parity between the two superpowers, US efforts to enforce compliance are provocative and dangerous. Thus, some would be willing to interpret Soviet violations as not militarily significant and not worth pursuing, since that would hamper US-Soviet relations in other arenas. This is particularly true for the chemical, biological, and toxin weapons which many view as being of no strategic importance and some even consider as having no tactical utility.

27. Many in Europe and elsewhere regard chemical, toxin, or biological weapons as almost as frightful and indiscriminate as nuclear weapons and, therefore, prefer to deny their existence in the hope that they will disappear or be negotiated away. Furthermore, for them, admitting blatant Soviet violation of an existing arms agreement would destroy the argument that treaties are self-enforcing even in the absence of effective verification, because of the high political cost associated with being publicly branded before the world as a violator.

28. The impact on the Soviet leaders of what they may perceive as an inability of the West to deal effectively with the violations probably has greater implications for the West than the fact of the violation itself. The lack of cohesion in the Western reaction could be read by the Soviet leaders as an indicator that they can violate at least some agreements—those most difficult to monitor—without major costs. The message they have received so far gives them no compelling reason to adhere strictly to their obligations.

29. We do not expect that sufficient *public* pressure can be brought to bear to arrest what appears to be a sustained Soviet toxin and biological weapons program—a program most clearly prohibited by the BWC. Soviet literature reflects the firm conviction that other major powers possess these weapons and will employ them against Soviet forces in any major future conflict.

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30. The implications for the viability of a new chemical weapons convention now being negotiated in Geneva seem clear. Two factors will figure prominently in the Soviet calculus of the risks they would run in the future by violating provisions of the projected treaty: (1) the ability of the Parties to monitor the provisions and detect violations, and (2) the forcefulness of the international response to such violations. If they perceive both of these as being weak, as present evidence might lead them to conclude, there would be little incentive for them to adopt a rigorous policy of compliance. To provide that incentive would require more than the adoption of effective and acceptable verification provisions—in itself a complex task; it would also require that the West muster the resolve to react decisively in the face of evidence of violation

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Soviet objectives, which include dividing the Western Alliance and

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blocking their specific weapons or modernization programs. An effective propaganda effort directed from the highest levels of government supports these objectives. Much of the propaganda is focused on encouraging complacency among the Western democracies and on exploiting the tendency in some parts of the European political spectrum to equate the mere fact of visible diplomatic activity (for example, arms control negotiations) with progress toward peace and thus, by implication, with a reduced need for a vigorous defense. These attitudes persist despite the mounting evidence of questionable Soviet practices regarding compliance with treaty obligations. While Soviet propaganda does not create the vociferous opposition by peace groups in the West to such issues as INF deployment, MX development, and CW binary production, it at least helps sustain it.

A Decision To Discontinue?

33. Recent indications raise the possibility that the Soviets may have decided to constrain use of lethal CW agents. A review of all available recent intelligence on the use of chemical weapons in Southeast Asia and Afghanistan, including a firsthand survey in the field, reveals a striking reduction in the incidence of lethal attacks since the beginning of 1983 in spite of a relatively high level of combat activity in Laos, Kampuchea, and Afghanistan. Reports of chemical attacks—including lethal events—continue to be received and corroborated by other data, but, for the most part, these relate to events of an earlier period, principally mid-to-late 1982. Moreover, the chemical attacks reportedly occurring in 1983 appear largely to have involved the use of riot-control agents and sublethal concentrations of other agents, mixtures of agents, or mixtures of agents and toxins.

34. While a span of eight months is insufficient time to provide an explanation as to why lethal attacks have decreased markedly, the current decline is unprecedented. We cannot rule out the *possibility* that a Soviet policy decision to limit the use of lethal chemical and toxin agents may have been taken.

35. There are other possible explanations for the sharp decline in CW and toxin attacks including the fact that the H'mong, who are the principal targets in Laos, are greatly diminished in numbers and are dispersed to the point where they no longer pose a serious threat. In Afghanistan, where chemical agent use has always appeared to be more selective and limited in scope, a decline in use may be dictated by the changing character of Soviet and Afghan combat operations there or by a finding of Soviet operational testing that the agents are less effective than originally thought. Kampuchea is a more difficult situation to evaluate. We have evidence of continued use of chemical agents and some indications of toxin use in 1983. This continued use could, of course, be explained by the possibility that the Soviets may not be able fully to control Vietnamese use against the Democratic Kampucheans and Khmer. The Vietnamese may by now have acquired a limited indigenous capability to produce and weaponize some agents as a result of technology and training acquired from the Soviet Union. If that is the case, some use of both lethal and incapacitating agents may continue despite a Soviet decision to place tighter constraints on chemical use

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The Spread of Chemical Weapons

The Proliferation Record

36. The past decade has seen an ominous proliferation of chemical weapons acquired by Third World states, especially in the fertile crescent of the Middle East. The increasing public awareness that such weapons are being used effectively under the aegis of one of the superpowers and without evoking much public censure may provide further stimulus to this trend. A brief historic perspective of developments in key countries will provide some sense of the dimensions of the problem.

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37. *Egypt* was the first country in the Middle East region to obtain chemical weapons training, indoctrination, and materiel as part of the sizable security assistance it received from the Soviet Union throughout the 1960s.

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38. *Iraq* became a beneficiary of Soviet CW indoctrination and training in the mid-1960s, but their CW

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activities remained low key until Iraq's ill-fated invasion of Iran in September 1980.

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39. The effective use by the Iraqis of tear gas (CS) to turn back an Iranian offensive in 1982 has been documented,

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40. *Syria*, also a major recipient of Soviet CW assistance, probably has the most advanced chemical warfare capability in the Arab world,

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41. *Libya*, the largest purchaser of Soviet military assistance (at least in financial terms), must be assumed to have also benefited from Soviet CW indoctrination and training.

44. Beyond the Middle East, a number of other countries, principally in the Horn of Africa and in East Asia, have moved toward chemical capabilities.

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45. *Ethiopia's* involvement with CW is also heavily Soviet based. It has acquired chemical agents, munitions, and decontamination equipment as well as CW training from the Soviet Union

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[redacted]

The Soviet Role

50. While there does not appear to be a common pattern of acquisition of chemical warfare capabilities, a common initial stimulus was imparted by Soviet military assistance. Under the influence of that assistance, Egypt, Iraq, Syria, and Libya all developed their initial appetites and capabilities for chemical warfare. These acquisition efforts have had an accelerating effect on proliferation in the region as a whole and possibly beyond. [redacted] While the evidence is not yet sufficient to allow us to conclude that we are witnessing the onset of a serious chemical arms race, forces and ambitions have been set in motion that will be difficult to arrest. [redacted]

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51. The active Soviet role in stimulating proliferation of chemical weapons seems, on the face of it, inconsistent with their characterization of such weapons as "weapons of mass destruction," a term that is taken by some as signifying special constraints on their use. In the case of nuclear weapons, for example, which are similarly characterized, Soviet policy has been one of strict adherence to the nonproliferation regime, including undeviating insistence on imposition of international safeguards. The seeming contradiction can be explained in three ways: first, the term "weapons of mass destruction" does not, in Soviet usage, carry such restrictive connotation—the term is applied to a wide spectrum of weapons having broad area effects; second, nuclear weapons, unlike chemical weapons, pose a unique threat to vital Soviet security interests, and their potential spread is an anathema in their eyes; and third, chemical warfare capabilities are so completely integral to the Soviet force structure that we should not be surprised to see training, doctrine, and materiel transferred almost routinely as part of their military assistance programs. [redacted]

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Implications

52. Three forces are at work that sustain the proliferation momentum:

— *Soviet military assistance*, acting as both a source and a stimulus. If this military assistance continues—as we have every reason to expect—it is bound to add further fuel to the anxieties that drive the chemical warfare momentum. As more nations join the chemical club, a heightened sense of vulnerability is likely to manifest itself.

— *An open market source of supply.* Numerous non-Communist and Warsaw Pact firms are capable of selling CW protective equipment, train-

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ing, chemical munitions, and the necessary components to manufacture them. Moreover, the wide diffusion of chemical production capabilities and the large profits to be made make effective control over the transfer of the relevant technologies virtually impossible. In many cases, the acquiring military force deals directly with firms in the West, often without the knowledge of the supplier's government. We see only continued growth in this industry.

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— *Motivations.* Third World military establishments appear to consider chemical weapons as offering important tactical benefits. Harboring, as they often do, a particular fascination for technological solutions to military problems, they may look to nerve gas and toxin weapons with more than routine interest. They are also unlikely to be inhibited from resort to such weapons by the kind of public revulsion these weapons evoke in the West, or by the fear of possible escalation to a nuclear response that applies to the NATO–Warsaw Pact environment.

53. The readiness to use such weapons is probably tempered somewhat by two factors. One is the undetermined effectiveness of both traditional and novel agents in the special climatic and terrain conditions of these regions. Another is the lack of experience of local forces with the employment of such weapons. Neither of these factors would be likely, however, to prevent the use of such weapons if the country contemplating their use felt its security significantly threatened. Moreover, the lack of public outcry against the use of such weapons cannot have gone unnoticed by Third World governments. The Vietnamese and Lao, for example, have suffered little international sanction for their role in CW use.

54. These considerations lead us to conclude that the upsurge in chemical warfare activities will continue.

Significance for Western Defense

Vulnerability to Chemical Warfare

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[6] The only attempt that achieved even limited, short-term effects was the highly publicized cyanide poisoning of Israeli oranges by the Arab Revolutionary Army–Palestinian Command in 1978.

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Toxins may be effective in contaminating potential amphibious landing sites, supply ships, shore facilities, and land routes.

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61. Soviet employment of trichothecene mycotoxins in Southeast Asia and strong indications that other toxins have long been under development in the USSR makes it likely that a variety of novel agent combinations is already incorporated in the Soviet arsenal. Some of these undoubtedly have unique properties not heretofore encountered.

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Toxins: The Added Threat

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— *Decontamination.* Decontamination from toxin exposure is probably more readily accomplished than from the more persistent standard agents. For example, VX and thickened mustard are gummy and hard to remove, whereas some toxins when exposed to sunlight and oxygen, are inactivated and others can be washed away with water. Nonetheless, because of their potency, persistence, and low detectability, toxins could pose a significant hazard.

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Implications

64. The use of unknown combinations of chemical and toxin weapons in local conflicts and the proliferation of such weapons to a growing number of countries raise two serious concerns.

65. *One* is the increased likelihood that US and allied forces deployed to Third World regions either as combatants or in a peacekeeping or advisory role may become deliberate or unintended targets of chemical or toxin attacks. Such attacks could be visited upon Western forces quite independently of any direct Soviet role. Western forces will have to be prepared to protect themselves against such an eventuality.

Implications for Intelligence

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ANNEX A

EVIDENCE ON CHEMICAL WEAPONS USE IN SOUTHEAST ASIA AND AFGHANISTAN

The Findings

1. A Special National Intelligence Estimate of February 1982, subsequently updated and reaffirmed in a Memorandum to Holders in March 1983, found that:

— Lao and Vietnamese forces, assisted by Soviet logistics and supervision, have used lethal chemical agents against H'Mong resistance forces and villages since at least 1976, and trichothecene mycotoxins have been positively identified as ingredients in one of the classes of agents used. Other types of chemical agents have been used also.

— Vietnamese forces have used trichothecene toxins and a variety of chemical agents against Kampuchean troops and Khmer villages since at least 1978.

— The only hypothesis consistent with all the evidence is that the trichothecene toxins were developed in the Soviet Union, provided to the Lao and Vietnamese, either directly or through transmission of technical know-how, and made into weapons with Soviet assistance in Laos, Vietnam, and Kampuchea. It is highly probable that the USSR also provided other chemical warfare agents.

— Soviet forces in Afghanistan have used lethal and casualty-producing agents on Mujahedin resistance forces and Afghan villages since the Soviet invasion in December 1979. Evidence of the use of mycotoxins has been obtained through sample analysis.

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The Evidence

Special Intelligence Including Photography

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Physical and biological control samples have been acquired in many cases. In none of these controls has the presence of any lethal chemical agent been noted. Furthermore, the particular chemicals and, in general terms, their concentrations found in many samples (when information is available) have been internally consistent with the stories of human observers present at the site of the specific alleged attacks from which they were taken. These consistencies have included method of delivery, symptoms in animals and humans, and aftereffects. In several cases physical and biological samples have been independently acquired from the same sites by different groups. And in a number of cases, controls have also been obtained from the periphery of these attack sites and from age and sex matched control cohorts.

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Medical Data

5. Medical reporting including histories and physical examinations obtained by qualified specialists in tropical medicine, chemical agent effects, internal medicine and dermatology, and forensic medicine have led to the conclusion that lethal agents, including small molecular-weight mycotoxins, have been used. Limited autopsy data available from all three countries support the conclusion that chemicals exogenously supplied by weapons rather than through natural disease explain the preponderance of the findings. Not one qualified physician who has examined victims alleging to have experienced chemical attacks has accepted any alternative explanation as plausible. Similarly, interviews we accepted for analysis were conducted by qualified individuals with training in sociology and anthropology. Possibilities of systematic bias due to cross-cultural misunderstanding, language barriers, folkways peculiarities, and magical thinking are essentially ruled out.

Scientific-Sample Evidence

6. The United States has processed approximately 750 discreet physical and biological specimens from

Note on Methodology

7. Attack data from the above classes were reviewed, recorded, tabulated, and screened for duplication and inconsistency. Attack tables which have been generated in previous assessments were primarily compiled to include only those events that could be confirmed by more than one class of data. All sample evidence of either physical or biological nature was double blinded and submitted with controls. No false positives have been discovered throughout these procedures. All community analyses have been scrutinized by an outside panel of fully cleared nongovernment specialists in medicine, chemistry, and the social sciences. Experts from other countries were also consulted. No alternative scientific or technical explanation has been proffered that diverges from the conclusions expressed in the Special National Intelligence Estimates. Alternative hypotheses ranging from serious to fanciful have been considered and, after investigation, rejected on grounds of scientific indefensibility.

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ANNEX B

SOVIET DEVELOPMENT OF TOXINS

1. The use of a variety of lethal chemical agents in Laos, Kampuchea, and Afghanistan has been largely overshadowed by the discovery of a single new agent—trichothecene mycotoxins—a component of "yellow rain."

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the use of toxins as combat weapons is not a newly developed or experimental Warsaw Pact concept, but that the trichothecenes may have been part of the Soviet arsenal for decades.

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